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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/717,128	11/19/2003	James Mac Freitag	HIT1P027/HSJ9-2003-0150US	7028
50535	7590	04/04/2006	EXAMINER	
ZILKA-KOTAB, PC P.O. BOX 721120 SAN JOSE, CA 95172-1120			CHEN, BRET P	
			ART UNIT	PAPER NUMBER
			1762	
DATE MAILED: 04/04/2006				

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/717,128

Applicant(s)

FREITAG ET AL.

Examiner

B. Chen

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1762

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 18 January 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) 13-15, 17 and 18 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-12 and 16 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

### **DETAILED ACTION**

Claims 1-18 are pending in this application. Amended claims 1, 12 are noted.

The amendment dated 1/18/06 has been entered. The examiner appreciates the amendments to the claims. In view of said amendment, the art rejection has been withdrawn.

Claims 13-15, 17-18 have been withdrawn from consideration as being directed to a nonelected invention.

### ***Claim Rejections - 35 USC § 103***

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

**Claims 1-12, 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mao (6,466,419) alone or when taken in view of Pinarbasi (6,317,299) or Huai et al. (6,381,105).**

Mao discloses a method of producing a spin valve head which includes a free layer, a spacer layer, a pinned layer, and a pinning layer (col.2 lines 57-67) in which a seed layer 172 has formed on it: a pinning layer 170; anti parallel ferromagnetic layers 164, 168; a free layer 160; a spacer layer 158; and a bias layer 156 (Figure 5a and cols 5-6). The pinning layer 170 can be PtMn (col.5 lines 34-37), an Hce and Hk are shown in Figure 7, and a dR of greater than 14 is shown (Figure 8). However, the reference fails to specifically teach ion beam deposition.

It is noted above that the Mao specifically teaches that spin valves can be made by ion beam sputtering (p.2 col.1 under "Other Publications). One skilled in the art would realize that the reference suggests that the PtMn layer could be deposited by ion beam deposition. It would

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have been obvious to one skilled in the art to deposit the PtMn layer by ion beam deposition given the teaching that various layers can be formed by ion beam deposition.

In addition, Pinarbasi '299 teaches that PtMn materials can be deposited by ion beam deposition in spin valve sensors (col.6 lines 30-40) and Huai teaches that the antiferromagnetic layer such as PtMn (col.8 lines 59-63) can be deposited by ion beam deposition (col.9 lines 8-10). It would have been obvious to utilize ion beam deposition to deposit the PtMn layer in the process of Pinarbasi '492 with the expectation of success because Pinarbasi '299 and Huai teach the conventionality of using ion beam deposition to form the PtMn layer.

The limitations of claims 2-12 and 16 have been addressed above.

#### ***Response to Arguments***

Applicant's arguments with respect to the claims have been considered but are moot in view of the new ground(s) of rejection.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to B. Chen whose telephone number is (571) 272-1417. The examiner can normally be reached on 7:30am - 4:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy Meeks can be reached on (571) 272-1423. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Bc  
3/30/06



**BRET CHEN  
PRIMARY EXAMINER**